

Notice of Allowability

Application No.

10/705,296

Examiner

DANIEL G. MARIAM

Applicant(s)

SILVER ET AL.

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to an amendment filed 11/10/03 and a telephone interv. dated 8/18/05.
2. ☒ The allowed claim(s) is/are 122-191 (will be renumbered as 1-70).
3. ☒ The drawings filed on 11/10/03 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 11/10/2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 08/18/2005.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DANIEL MARIAM
PRIMARY EXAMINER

EXAMINER'S AMENDMENT AND REASONS FOR ALLOWANCE

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Russel Weinzimmer (Reg. No. 36,717) on August 18, 2005.

The application has been amended as follows:

Amend the specification as follows:

In page 2 of the amended specification dated November 10, 2003 under the heading "Cross Reference to Related Applications": in line 2 after " 12/22/2000" insert "which is now US Patent No. 6,658,145 issued on December 2, 2003" - -

under the heading "Cross Reference to Related Application" in line 3 after "12/31/1997" insert "which is now abandoned" - -

under the heading "Cross Reference to Related Application" in lines 3-4 delete "09/979,588" filed 11/26/1997" and replace it with "08/979,588 filed 11/26/1997, which is now abandoned" - -

2. Please Note: While applicants have canceled claims 1-120 of the originally filed claims by the amendment (See page 3 of the preliminary amendment filed November 10, 2003), and

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have submitted newly added claims 121-190 (See pages 3-10 of the preliminary amendment), the originally filed claims in fact contain claims 1-121.

Cancel the originally filed claim 121, and renumber the newly added claims **121-190 as 122-191, after the following amendments to the newly added claims have been entered.**

Amend the newly added claim 121 as follows:

At line 10, delete the limitation “adapted” and replace it with “configured” - -

At line 13, delete the limitation “adapted” and replace it with “configured” - -

At line 16, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 127 as follows:

At line 3, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 130 as follows:

At line 3, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 131 as follows:

At line 3, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 132 as follows:

At line 3, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 133 as follows:

At line 3, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 134 as follows:

At line 1, delete “10” and replace it with “130” - -

At line 2, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 139 as follows:

At line 3, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 140 as follows:

At line 3, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 143 as follows:

At line 13, before the limitation “representing” delete the limitation “, the refined pose”–

At lines 14-17, delete the limitation “, wherein using the stored model pattern, the starting pose, and the plurality of image boundary points in a sequence of pose refinements to provide at least a refined pose further includes:” and replace it with “includes:” - -

Amend the newly added claim 165 as follows:

At line 15, before the limitation “representing” delete the limitation “, the refined pose”–

At lines 16-19, delete the limitation “, wherein using the stored model pattern, the starting pose, and the plurality of image boundary points in a sequence of pose refinements to provide at least a refined pose further includes:” and replace it with “includes:” - -

Amend the newly added claim 173 as follows:

At line 10, delete the limitation “adapted” and replace it with “configured” - -

At line 13, delete the limitation “adapted” and replace it with “configured” - -

At line 14, delete the limitation “adapted” and replace it with “configured” - -

At line 20, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 175 as follows:

At line 3, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 177 as follows:

At line 3, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 178 as follows:

At line 3, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 179 as follows:

At line 3, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 184 as follows:

At line 3, delete the limitation “adapted” and replace it with “configured” - -

At line 5, delete the limitation “adapted” and replace it with “configured” - -

At line 9, delete the limitation “adapted” and replace it with “configured” - -

Amend the newly added claim 190 as follows:

At line 2, delete the limitation “adapted” and replace it with “configured” - -

 ***Reasons for Allowance***

3. Claims 122-191 are allowed. The claims will be renumbered as 1-70).
4. The following is an examiner’s statement of reasons for allowance: the instant invention discloses refining a starting pose of an object using geometric pattern matching. Upon acquisition of a run-time image of the object having an expected shape and a true pose, the starting pose represents an initial estimate of the true pose, the instant invention detects a plurality of image boundary points. Thereafter, the instant invention uses these boundary points and a vector-valued function of position to provide a motion transform, and using the motion transform and the current pose, the instant invention provides a refined pose, which represents a refined estimate of the pose of the object in the run-time image. The instant invention further uses a look-up table to provide a look-up table entry for each image boundary point of the plurality of image boundary points, and applies a smoothness constraint to the look-up table so as

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the object in the run-time image. These features in combination with all of the other elements of the claims are not disclosed or fairly suggested by any one of the prior arts of record.

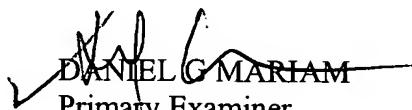
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G. MARIAM whose telephone number is 571-272-7394. The examiner can normally be reached on M-F (7:00-4:30) FIRST FRIDAY OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BHAVESH M. MEHTA can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DANIEL G. MARIAM
Primary Examiner
Art Unit 2625

August 19, 2005